David E. Butman, Ph.D. Jack Corkery and George Corkery Jr. Endowed Professor in Forest Sciences**,** Associate Professor, University of Washington, School of Environmental and Forest Sciences, Civil & Environmental Engineering,

Address: Box 352100, Seattle, WA 98195 Phone: 203-577-9911, Email: dbutman@uw.edu ,

EDUCATIONAL HISTORY

Ph.D.	**Forestry & Environmental Studies** (conferred: 2012) Adv. Dr. Peter Raymond *Yale University, Graduate School of Arts & Sciences (New Haven, CT)*	2006-2011
MESc.	**Environmental Science** Adv. Dr. Lisa Curran & Dr. Peter Raymond *Yale University, Yale School of Forestry and Environmental Studies (New Haven, CT)*	2004-2006
B.A.	**Economics & Environmental Studies** *Connecticut College, (New London, CT)*	1996-2000
	The Ecosystems Center, MBL, (Woods Hole, MA)	2000

EMPLOYMENT HISTORY

***Assistant Professor*- University of Washington, School of Environmental and Forest Sciences, Civil & Environmental Engineering** 2014-2019

***Postdoctoral Associate*- U.S. Geological Survey and Yale University** 2011- 2014
Yale University (New Haven, CT)
Project: *National assessment of US greenhouse gas fluxes from aquatic systems*, (Dr. Rob Striegl and Dr. Zhiliang Zhu USGS)

- Develop predictive and spatially explicit statistically driven models to evaluate the variability and drivers of carbon chemistries across aquatic systems in the US.
- Lead field campaigns to validate models of greenhouse gas evasion from inland aquatic systems

***Research Assistant*: The Woods Hole Research Center** 2002-2004
(Woods Hole, MA)
Project*: Changes in Terrestrial Carbon Storage in Russia as a Result of Recent Disturbances and Land-use change* (Dr. Richard Houghton)

- Remote sensing using MODIS, Landsat and IKONOS data to model biomass across northern Eurasia through the NASA Land Cover Land Use Change program.

AWARDS AND HONORS

Faculty Member of the year	School of Environmental and Forest Sciences	2018
Nominated – Lindeman Award	ASLO – outstanding paper for young scientist -	2013

Nominated – Blatvatnik Award	NY Academy of Science Early Career Award	-	2013
DISCCRS – Climate Change	Early Career Symposium Scholar	-	2012
Center for Scientific Teaching	Yale University Fellow	-	2012
United States Geological Survey	Post-doctoral Fellowship (USGS-Yale)	$330K	2011-2014
NASA Earth & Space Science	Pre-doctoral Fellowship (NASA-Yale)	$84K	2007-2010
Teresa Heinz Scholars	Environmental Research Scholarship	$5K	2005
Woods Hole Oceanographic Institution (NOSAMS Facility)	Research Support Fellowship	$2K	2005
Tropical Resources Institute	Research Support Fellowship (Yale)	$3K	2005
Center for South East Asian Studies	Research Support Fellowship (Yale)	$2.5K	2005
Carpenter/Sperry Award	Research Support Fellowship (Yale)	$600	2004-05
Connecticut College	Richard H. Goodwin Prize in Human Ecology	-	2000
Connecticut College	Anthony Francis Nelson Prize in Human-Ecology	-	2000

AFFILIATIONS AND OTHER APPOINTMENTS

Affiliate Professor, University of Washington, Canadian Studies Center
Affiliate Professor, Quantitative Ecology and Resource Management Program, University of Washington
Affiliate Professor, eScience Institute, University of Washington
Affiliate – U.S. Geological Survey – Boulder, CO – ends 2022

PUBLICATIONS

[h-index (32 -google,) i10-index (48) 4/13/2023] intellectual contribution in parentheses, *student or postdoc – total citations 6717

72. Williams, CA, A Andrews, M Brown, KJDavis, FHoffman, LLarson, B Poulter, GShrestha, ETSundquist, Y Wei, et al. 2023. 2022NorthAmericanCarbon ProgramScienceImplementation Plan, Report oftheNorthAmericanCarbon Program. Washington,DC: USCarbonCycle Science Program, DOI:10.5065/kwe1-w815 (Controbuting author)

71. Casas-Ruiz, J. P., Bodmer, P., Bona, K. A., **Butman, D**., Couturier, M., Emilson, E. J., et al. (2023). Integrating terrestrial and aquatic ecosystems to constrain estimates of land-atmosphere carbon exchange. *Nature communications, 14*(1), 1571.

70. Kurek, M. R., Garcia-Tigreros, F., Wickland, K. P., **Butman D.** Frey, K. E., Dornblaser, M. M., Striegl, R. G., et al. Hydrologic and landscape controls on dissolved organic matter composition across western North American Arctic lakes. *Global Biogeochemical Cycles*, e2022GB007495.

69. Murray-Tortarolo, G., Poulter, B., Vargas, R., Hayes, D., Michalak, A. M., **Butman D**., et al. (2022). A Process-Model Perspective on Recent Changes in the Carbon Cycle of North America. *Journal of Geophysical Research: Biogeosciences, 127*(9), e2022JG006904.

68. Wang, C., Pavelsky, T., Kyzivat, E., **Garcia-Tigreros, F**., Yao, F., Yang, X., **Butman D** et al. (2022). ABoVE: Wetland Vegetation Classification for Peace-Athabasca Delta, Canada, 2019. ORNL DAAC, Oak Ridge, Tennessee, USA. In.

67. Hayes, D. J., **Butman, D.** E., Domke, G. M., Fisher, J. B., Neigh, C. S., & Welp, L. R. (2022). Boreal forests. In *Balancing Greenhouse Gas Budgets* (pp. 203-236): Elsevier

66. Koch, J. C., ***Bogard, M. J., Butman, D**. E., Finlay, K., Ebel, B., ***James, J**., . . . Wickland, K. P. (2022). Heterogeneous Patterns of Aged Organic Carbon Export Driven by Hydrologic Flow Paths, Soil Texture, Fire, and Thaw in Discontinuous Permafrost Headwaters. Global Biogeochemical Cycles, 36(4), e2021GB007242. doi:https://doi.org/10.1029/2021GB007242

65. ***Liu, S**., ***Kuhn, C**., Amatulli, G., Aho, K., **Butman, D**. E., Allen, G. H., . . . Raymond, P. A. (2022). The importance of hydrology in routing terrestrial carbon to the atmosphere via global streams and rivers. Proceedings of the National Academy of Sciences, 119(11), e2106322119. doi:doi:10.1073/pnas.2106322119

64. ***Johnston, S. E.,** Finlay, K., Spencer, R. G. M., **Butman, D. E**., Metz, M., Striegl, R., & ***Bogard, M. J**. (2022). Zooplankton release complex dissolved organic matter to aquatic environments. Biogeochemistry, 157(3), 313-325. doi:10.1007/s10533-021-00876-7

63. ***Kates, N., Butman, D**., Grothkopp, F., & Brown, S. (2021). Tools to Quantify the Potential for Phosphorus Loss from Bioretention Soil Mixtures. Journal of Sustainable Water in the Built Environment, 7(4), 04021014. doi:doi:10.1061/JSWBAY.0000959

62. Kyzivat, E. D., Smith, L. C., **Garcia-Tigreros, F**., Huang, C., Wang, C., Langhorst, T., et al. (2022). The Importance of Lake Emergent Aquatic Vegetation for Estimating Arctic-Boreal Methane Emissions. *Journal of Geophysical Research: Biogeosciences, 127*(6), e2021JG006635..

61. **Kuhn, C., & Butman, D**. (2021). ABoVE: Lake Growing Season Green Surface Reflectance Trends, AK and Canada, 1984-2019. In: ORNL Distributed Active Archive Center.

60. **Kuhn, C.,** John, A., Hille Ris Lambers, J**., Butman, D**., & Tan, A. (2021). Arctic-boreal lake phenology shows a relationship between earlier lake ice-out and later green-up. *Remote Sensing, 13*(13), 2533. (Writing and conceptual design)

59. Giesbrecht, I. J. W., S. E. Tank, G. W. Frazer, E. Hood, S. G. Gonzalez Arriola, D. E. Butman, D. V. D'Amore, D. Hutchinson, A. Bidlack, and K. P. Lertzman (2022), Watershed Classification Predicts Streamflow Regime and Organic Carbon Dynamics in the Northeast Pacific Coastal Temperate Rainforest, Global Biogeochem. Cy., 36(2), e2021GB007047, doi: https://doi.org/10.1029/2021GB007047.
(writing and synthesis activities*)*

58. Begum, M. ***Bogard, M. Butman**, D, Chea, E., Kumar, S., Nayna, O, Ran, L., Richey, J., Tareq, S., Xuan, D.T., Yu, Ruihong, Park, J. Localized pollution impacts on greenhouse gas dynamics in three anthropogenically modified Asian river systems; *(Accepted JGR-Biogeosciences 4/21) (*isotope analysis, methods and writing)

57. Xenopoulos, M. A., Barnes, R. T., Boodoo, K. S**., Butman, D**., Catalán, N., D'Amario, S. C., . . . Wilson, H. F. (2021). How humans alter dissolved organic matter composition in freshwater: relevance for the Earth's biogeochemistry. *Biogeochemistry*. doi:10.1007/s10533-021-00753-3 (section lead)

56. Lee, E.-J., Shin, Y., Yoo, G.-Y., Ko, E.-B., **Butman, D**., Raymond, P. A., & Oh, N.-H. (2021). Loads and ages of carbon from the five largest rivers in South Korea under Asian monsoon climates. *Journal of Hydrology*, 599, 126363. doi:https://doi.org/10.1016/j.jhydrol.2021.126363 (Analysis and synthesis in writing)

55. ***Kuhn, C. and D. Butman**; Declining greeness in Arctic-boreal lakes, *Proceedings of the National Academy of Sciences*, 2021, 118 (15) (writing, design and analysis)

54. Bidlack, A. L., Sarah M Bisbing, Brian J Buma, Heida L Diefenderfer, Jason B Fellman, William C Floyd, Ian Giesbrecht, Amritpal Lally, Ken P Lertzman, Steven S Perakis, **David E Butman**, David V D'Amore, Sean W Fleming, Eran W Hood, Brian P V Hunt, Peter M Kiffney, Gavin McNicol, Brian Menounos, Suzanne E Tank (2021), Climate-Mediated Changes to Linked Terrestrial and Marine Ecosystems across the Northeast Pacific Coastal Temperate Rainforest Margin, *BIOSCIENCE*, doi:10.1093/biosci/biaa171(writing and synthesis)

53. Harlan, M. E., Gleason, C., Altenau, E.H., **Butman, D.,** Carter, T., V. W. Chu S. W. Cooley W. D. Dolan M. T. Durand E. Eidam J. V. Fayne D. Feng Y. Ishitsuka C. Kuhn E. D. Kyzivat T. Langhorst J. T. Minear T. M. Pavelsky D. L. Peters A. Pietroniro L. H. Pitcher L. C. Smith Discharge Estimation From Dense Arrays of Pressure Transducers, *Water Resour Res*, *57*(3), e2020WR028714, doi:https://doi.org/10.1029/2020WR028714. (data collection and writing)

52. Ran, L., D. E. Butman, T. J. Battin, X. Yang, M. Tian, C. Duvert, J. Hartmann, N. Geeraert, and S. Liu (2021), Substantial decrease in CO2 emissions from Chinese inland waters due to global change, Nature Communications, 12(1), 1730, doi:10.1038/s41467-021-21926-6. (writing, study design and analysis)

51. Tagestad, J., Ward, N. D., **Butman, D**., & Stegen, J. (2021). Small streams dominate US tidal reaches and will be disproportionately impacted by sea-level rise. *SCIENCE OF THE TOTAL ENVIRONMENT*, *753*, 141944. (writing, data contribution and analysis)

50. Liu, S. D., **Butman, D**. E., & Raymond, P. A. (2020). EvaluatingCO(2)calculation error from organic alkalinity and pH measurement error in low ionic strength freshwaters. *Limnology and Oceanography-Methods*, *18*(10), 606-622. doi:10.1002/lom3.1038 (writing, and data synthesis)

49. ***O'Dwyer, M.**, **Butman, D**. E., Striegl, R. G., Dornblaser, M. M., Wickland, K. P., ***Kuhn, C**. D., & ***Bogard, M. J**. (2020). Patterns and isotopic composition of greenhouse gases under ice in lakes of interior Alaska. *Environmental Research Letters*, *15*(10). doi:10.1088/1748-9326/abb493 (data collection, analysis, and writing)

48. Johnston, S. E., Striegl, R. G., ***Bogard, M. J**., Dornblaser, M. M., **Butman, D.** E., Kellerman, A. M., . . . Spencer, R. G. M. (2020). Hydrologic connectivity determines dissolved organic matter biogeochemistry in northern high-latitude lakes. *Limnology and Oceanography*, *65*(8), 1764-1780. doi:10.1002/lno.11417 (data collection, synthesis and writing).

47. ***Bogard, M.**, **Butman D**.; del Giorgio P. Comment on "On the calculation of lake metabolic rates: Diel O2 and 18/16O technique" by Peeters et al. [Water Research 165 2019, 114990]; 2020 (writing)

46. ***Kuhn, C., *Bogard**, M., Johnston, S. E., John, A., Vermote, E., Spencer, R., . . . **Butman, D**. (2020). Satellite and airborne remote sensing of gross primary productivity in boreal Alaskan lakes. *Environmental Research Letters, 15*(10). doi:10.1088/1748-9326/aba46f (study design, analysis and writing)

45. ***Bogard, M. J**., Bergamaschi, B. A., **Butman, D. E.,** Anderson, F., Knox, S. H., & Windham-Myers, L. (2020). Hydrologic Export Is a Major Component of Coastal Wetland Carbon Budgets. *Global Biogeochemical Cycles, 34*(8). doi:10.1029/2019gb006430
(data analysis and writing)

44. ***Bogard M**. Johnston, S. Dornblaser M., Spencer R. Striegl R. **Butman D**.; (2019) Extreme rates and diel variability of planktonic respiration in a shallow sub-arctic lake; *Aquatic Sciences*; doi.org/10.1007/s00027-019-0657-9 (data collection analysis and writing)

43. Ward, N. D., Megonigal, J. P., Bond-Lamberty, B., Bailey, V. L., **Butman, D.,** Canuel, E. A., . . . Windham-Myers, L. (2020). Representing the function and sensitivity of coastal interfaces in Earth system models. *Nature communications, 11*(1). doi:10.1038/s41467-020-16236-2
(writing and analysis)

42. Johnston, S. E., ***Bogard, M. J**., Rogers, J. A., ***Butman, D**., Striegl, R. G., Dornblaser, M., & Spencer, R. G. M. (2019). Constraining dissolved organic matter sources and temporal variability in a model sub-Arctic lake. *Biogeochemistry, 146*(3), 271-292. doi:10.1007/s10533-019-00619-9

41. Ross, M. R. V., S. N. Topp, A. P. Appling, X. Yang, ***C. Kuhn, D. Butman**, M. Simard, and T. M. Pavelsky (2019), AquaSat: A Data Set to Enable Remote Sensing of Water Quality for Inland Waters, *Water Resour Res*, *55*(11), 10012-10025, doi:10.1029/2019wr024883.

40. Ishikawa, N. F., **Butman, D**., & Raymond, P. A. (2019). Radiocarbon age of different photoreactive fractions of freshwater dissolved organic matter. Organic Geochemistry, 135, 11-15. doi:https://doi.org/10.1016/j.orggeochem.2019.06.006 (developed idea / help with analysis and writing)

39. ***James, J. N**., C. D. Gross, P. Dwivedi, T. Myers, F. Santos, R. Bernardi, M. F. d. Faria, I. A. Guerrini, R. Harrison, and **D. Butman**. 2019. Land use change alters the radiocarbon age and composition of soil and water-soluble organic matter in the Brazilian Cerrado. *GEODERMA* **345**:38-50. https://doi.org/10.1016/j.geoderma.2019.03.019 (developed idea / writing)

38. ***Kuhn, C**., A. de Matos Valerio, N. Ward, L. Loken, H. O. Sawakuchi, M. Kampel, J. Richey, P. Stadler, J. Crawford, R. Striegl, E. Vermote, N. Pahlevan, and **D. Butman. 2019**. Performance of Landsat-8 and Sentinel-2 surface reflectance products for river remote sensing retrievals of chlorophyll-a and turbidity. *REMOTE SENSING OF ENVIRONMENT* 224:104-118. https://doi.org/10.1016/j.rse.2019.01.023 (developed idea – field campaign)

37. Gavin, M., Chuck, B., David, D. A., Paul, S., Sari, S., Ian, G, **David B.,** Brian, B. (2019). Large, climate-sensitive soil carbon stocks mapped with pedology-informed machine learning in the North Pacific coastal temperate rainforest. *Environmental Research Letters*, 14(1), 014004 https://doi.org/10.1088/1748-9326/aaed52 (contributed methods edited manuscript)

36. Pitcher, L. H., T. M. Pavelsky, L. C. Smith, D. K. Moller, E. H. Altenau, G. H. Allen, C. Lion, **D. Butman**, S. W. Cooley, J. V. Fayne, and M. Bertram. 2019. AirSWOT InSAR Mapping of Surface Water Elevations and Hydraulic Gradients Across the Yukon Flats Basin, Alaska. *Water Resources Research* 55:937-953 https://doi.org/10.1029/2018WR023274 (facilitated field work in AK – conducted field work with team)

35. ***Bogard, M. J., *Kuhn, C**. D., Johnston, S. E., Striegl, R. G., Holtgrieve, G. W., Dornblaser, M. M., . . . **Butman, D**. E. (2019). Negligible cycling of terrestrial carbon in many lakes of the arid circumpolar landscape. *Nature Geoscience*, 12(3), 180-185. doi:10.1038/s41561-019-0299-5 (Co-developed idea, writing, field collection, and analysis)

34. Stadler, P., Loken, L. C., Crawford, J. T., Schramm, P. J., **Butman, D.,** Sorsa, K., ***Kuhn, C**., . . . Zessner, M. (2019). Spatial patterns of enzymatic activity in large water bodies: Ship-borne measurements of beta-D-glucuronidase activity as a rapid indicator of microbial water quality. *SCIENCE OF THE TOTAL ENVIRONMENT*, 651, 1742-1752. doi:https://doi.org/10.1016/j.scitotenv.2018.10.084 (conducted field work- lead field team)

33. ***James, J**. **N., *Kates**, N., ***Kuhn, C**. D., Littlefield, C. E., Miller, C. W., Bakker, J. **D. Butman**, . . . Haugo, R. D. (2018). The effects of forest restoration on ecosystem carbon in western North America: A systematic review. *Forest Ecology and Management*, 429, 625-641. doi:https://doi.org/10.1016/j.foreco.2018.07.029*)* (co-developed idea – mentored students - writing)

32. ***Bogard, M. J**., & **Butman, D**. E. (2018). No blast from the past. *Nature Climate Change*, 8(2), 99-100. doi:10.1038/s41558-018-0070-8 (invitation for post-doc and myself – co-wrote)

31. Duvert, C., **Butman, D. E.**, Marx, A., Ribolzi, O., & Hutley, L. B. (2018). CO2 evasion along streams driven by groundwater inputs and geomorphic controls. *Nature Geoscience*, 11(11), 813-818. doi:10.1038/s41561-018-0245-y (contributed data, writing, and pushed for Nat Geo)

30. Najjar, R. G., Herrmann, M., Alexander, R., Boyer, E. W., Burdige, D. J., **Butman, D**., . . . Zimmerman, R. C. (2018). Carbon Budget of Tidal Wetlands, Estuaries, and Shelf Waters of Eastern North America. *Global Biogeochemical Cycles*, 32(3), 389-416. doi:doi:10.1002/2017GB005790 (conducted river flux analysis)

29. Barnes, R. T., **Butman, D. E.**, Wilson, H. F., & Raymond, P. A. (2018). Riverine Export of Aged Carbon Driven by Flow Path Depth and Residence Time. *Environmental Science & Technology*, 52(3), 1028-1035. doi:10.1021/acs.est.7b04717 (developed idea, analysis and writing)

28. **Butman, D.,** R. Striegl, S. Stackpoole, P. del Giorgio, Y. Prairie, D. Pilcher, P. Raymond, F. Paz Pellat, and J. Alcocer, 2018: Chapter 14: Inland waters. In *Second State of the Carbon Cycle Report (SOCCR2): A Sustained Assessment Report*. [Cavallaro, N., G. Shrestha, R. Birdsey, M. A. Mayes, R. G. Najjar, S. C. Reed, P. Romero-Lankao, and Z. Zhu (eds.)]. U.S. Global Change Research Program, Washington, DC, USA, pp. 568-595, doi: 10.7930/SOCCR2.2018.Ch14. (lead syhthesis – all writing)

27. Cooley, S. R., D. J. P. Moore, S. R. Alin, **D. Butman**, D. W. Clow, N. H. F. French, R. A. Feely, Z. I. Johnson, G. Keppel-Aleks, S. E. Lohrenz, I. B. Ocko, E. H. Shadwick, A. J. Sutton, C. S. Potter, Y. Takatsuka, A. P. Walker, and R. M. S. Yu, 2018: Chapter 17: Biogeochemical effects of rising atmospheric carbon dioxide. In *Second State of the Carbon Cycle Report (SOCCR2): A Sustained Assessment Report* [Cavallaro, N., G. Shrestha, R. Birdsey, M. A. Mayes, R. G. Najjar, S. C. Reed, P. Romero-Lankao, and Z. Zhu (eds.)]. U.S. Global Change Research Program, Washington, DC,

USA, pp. 690-727, https://doi.org/10.7930/SOCCR2.2018.Ch17. (contributed writing on inland waters)

26. Allen, G. H., Pavelsky, T. M., Barefoot, E. A., Lamb, M. P., **Butman, D.**, Tashie, A., & Gleason, C. J. (2018). Similarity of stream width distributions across headwater systems. *Nature communications*, 9(1), 610. doi:10.1038/s41467-018-02991-w (faciliated field work, conducted field work, writing, push for Nat Comm)

25. Crawford, J. T., **Butman, D. E**., Loken, L. C., Stadler, P., ***Kuhn, C**., & Striegl, R. G. (2017). Spatial variability of CO2 concentrations and biogeochemistry in the Lower Columbia River. *Inland Waters*, 1-11. doi:10.1080/20442041.2017.1366487

24. Bianchi, T. S., **Butman, D**., Raymond, P. A., Ward, N. D., Kates, R. J. S., Flessa, K. W., . . . Rodriguez, E. (2017). The experimental flow to the Colorado River delta: Effects on carbon mobilization in a dry watercourse. *Journal of Geophysical Research: Biogeosciences*, 122(3), 607-627. doi:10.1002/2016JG003555 (conducted all field work, contribute to analysis and writing)

23. Stackpoole, S. M., **Butman, D**. E., Clow, D. W., Verdin, K. L., Gaglioti, B. V., Genet, H., & Striegl, R. G. Inland waters and their role in the carbon cycle of Alaska. *ECOLOGICAL APPLICATIONS*, n/a-n/a. doi:10.1002/eap.1552 (analysis, concept and model design, writing)

22. Stets, E. G., **Butman, D.**, McDonald, C. P., Stackpoole, S. M., DeGrandpre, M. D., & Striegl, R. G. (2017). Carbonate buffering and metabolic controls on carbon dioxide in rivers. *Global Biogeochemical Cycles*, n/a-n/a. doi:10.1002/2016GB005578 (concept and design, writing, database development)

21. Hasler, C. T., **Butman, D**., Jeffrey, J. D., & Suski, C. D. (2016). Freshwater biota and rising pCO2? *Ecology Letters*, *19*(1), 98-108. doi:10.1111/ele.12549 (contributed data base, help with interpretation and writing)

20. **Butman, D**., Stackpoole, S., Stets, E., McDonald, C. P., Clow, D. W., & Striegl, R. G. (2016). Aquatic carbon cycling in the conterminous United States and implications for terrestrial carbon accounting. *Proceedings of the National Academy of Sciences*, *113*(1), 58-63. doi:10.1073/pnas. (lead all analysis and writing)

19. Ewing, S. A., O'Donnell, J. A., Aiken, G. R., Butler, K., **Butman, D**., Windham-Myers, L., & Kanevskiy, M. Z. (2015). Long-term anoxia and release of ancient, labile carbon upon thaw of Pleistocene permafrost. *Geophysical Research Letters*, n/a-n/a. doi:10.1002/2015GL066296 (conducted 14C lab work and writing)

18. Clow, D. W., Stackpoole, S. M., Verdin, K. L., **Butman, D**. E., Zhu, Z., Krabbenhoft, D. P., & Striegl, R. G. (2015). Organic Carbon Burial in Lakes and Reservoirs of the Conterminous United States. *Environmental Science & Technology*. doi:10.1021/acs.est.5b00373

17. Hotchkiss, E. R., Hall Jr, R. O., Sponseller, R. A., **Butman, D**., Klaminder, J., Laudon, H., Karlsson, J. (2015). Sources of and processes controlling CO2 emissions change with the size of streams and rivers. *Nature Geoscience*,, doi:10.1038/ngeo2507 (database contribution and writing)

16. **Butman, D**. E., Wilson, H. F., Barnes, R. T., Xenopoulos, M. A., & Raymond, P. A. (2014). Increased mobilization of aged carbon to rivers by human disturbance. *Nature Geoscience*, doi: 10.1038/ngeo2322 (lead writing, analysis, and statistsical modelling)

15. Stackpoole, Sarah, **Butman, D**. et al. *Baseline Carbon Sequestration, Transport, and Emission from Inland Aquatic Ecosystems in the Eastern United States* – Chapter 6 of Zhu, Zhiliang and Reed, B.C., eds. (2014) *Baseline and Projected Future Carbon Storage and Greenhouse-Gas Fluxes in ecosystems of the Eastern United States* – U.S. Geological Survey Professional Paper, ##, ## p. (http://pubs.usgs.gov/pp/##/). (model development, writing and synthesis)

14. Raymond, P. A., J. Hartmann, R. Lauerwald, S. Sobek, C. McDonald, M. Hoover, **D. Butman**, R. Striegl, E. Mayorga, C. Humborg, P. Kortelainen, H. Durr, M. Meybeck, P. Ciais and P. Guth (2013). "Global carbon dioxide emissions from inland waters." Nature **503**(7476): 355-359. (developed spatial model, writing, analysis)

13. McDonald, C.P., E.G. Stets, R.G. Striegl, **D. Butman**, "Inorganic Carbon Loading as the Primary Driver of Dissolved Carbon Dioxide Emissions from Lakes and Reservoirs of the Contiguous United States", (2013) Global Biogeochemical Cycles, doi:10.1002/gbc.20032 (provided database, interpretation and writing)

12. Bianchi, T., F. Garcia-Tigreros, S. Yvon-Lewis, M. Shields, H. Mills, **D. Butman**, C. Osburn, P.A. Raymond, G.C. Shank, S. DiMarco, N. Walker, R. Mullins, A. Quigg, G. Aiken, E. Grossman. "Enhanced Transfer of Terrestrially-Derived Carbon to the Atmosphere in a Flooding Event", (2013) Geophysical Research Letters, 40, 1-7, doi:10.1029/2012GL054145. (modelled CO_2 emission, writing, analysis)

11. Stackpoole, Sarah, **Butman, D**. et al. *Baseline Carbon Sequestration, Transport, and Emission from Inland Aquatic Ecosystems in the Western United States* – Chapter 10 of Zhu, Zhiliang and Reed, B.C., eds. (2012) *Baseline and Projected Future Carbon Storage and Greenhouse-Gas Fluxes in ecosystems of the Western United States* – U.S. Geological Survey Professional Paper 1797, 192 p. (http://pubs.usgs.gov/pp/1797/). (model development, writing and synthesis

10. **Butman, D.,** P.A. Raymond, G. Aiken, K Butler. "Contribution of Aged Organic Matter to the Coast from Large Rivers across the US", (2012) Global Biogeochemical Cycles, 26, GB4014. (everything except DOC measurement)

9. Poulos, H, B Chernoff, P. Fuller, **D. Butman**, "Mapping the potential distribution of the invasive red shiner, Cyprinella lutrensis (Teleostei: Cyprindae) across waterways of the conterminous United States", Aquatic Invasions, 7, (2012). (data collection and analysis)

8. Stubbins A., E. Hood, P.A. Raymond, G. Aiken, R.L. Sleighter, P. Hernes, **D. Butman**, P. Hatcher, R. Striegl, P. Schuster, H. Abdulla, A. Vermilyea, D. Scott, R. Spencer. "Anthropogenic aerosols as a source of ancient dissolved organic matter in glaciers", Nature Geoscience, 5, 198-201 (2012) doi:10.1038/ngeo1403 (conducted lab 14C analysis)

7. Raymond, P., C. Zappa, **D. Butman,** T. Bott, J. Potter, P. Mulholland, A. Laursen, W. McDowell, "Scaling Stream Morphology and the Gas Transfer Velocity in Streams and Small Rivers" (2012): Limnology and Oceanography: Fluids and the Environment, 2, 41-53. (developed USGS based database and analysis)

6. Poulos, H. M. B. Chernoff, P. L. Fuller, and **D. Butman,** "Ensemble Forecasting of Potential Habitat for Four Invasive Fishes", (2012): Aquatic Invasions 7(1), 59-72 doi: 10.3391/ai.2012.7.1.007. (database development from spatial data – statistical modeling)

5. Zhiliang Zhu (editor), M. Bouchard, **D. Butman**, T. Hawbaker, Z Li, J Liu, S. Liu, C. McDonald, R. Reker, K. Sayler, B. Sleeter, T. Sohl, S. Stackpoole, and Z. Zhu *"*Baseline and Projected Future Carbon Storage and Greenhouse-Gas Fluxes in the Great Plains Regions of the United States" (2011): USGS Professional Paper 1787, 28 p. (model development, writing and synthesis)

4. **Butman, D.,** P. Raymond, "Significant efflux of carbon dioxide from streams and rivers in the US", (2011): Nature Geoscience, 4(12), 839-842. (everything)

3. Houghton R.A., **D. Butman**, A. Bunn, O.N. Krankina, P. Schlesinger, T.A. Stone, (2007): *"*Mapping Russian Forest Biomass with Data from Satellites and Forest Inventories", Environmental Research Letters 2, 045032. (remote sensing and scaling model)

2. **Butman D.** P. A. Raymond, N.H. Oh, K. Mull (2007): "Quantity, 14C-age, and lability of desorbed soil organic carbon in freshwater and seawater", Organic Geochemistry, 38(9), 1547-1557. (idea concept, lab analysis and writing)

1. Krankina O. R.A. Houghton, M.E. Harmon, E.H. Hogg, **D. Butman**, M. Yatskov, M. Huso, R.F. Treyfeld, V.N. Razuvaev, G. Spycher (2005): "Effects of Climate and Disturbance on Forest Biomass Across Russia", Canadian Journal of Forest Research (Special Issue), 35(9), 2281-2293. (biomass modelling and remote sensing analysis)

MISCELLANEOUS

Non-Peer Reviewed Publications:

2. **D. Butman (lead),** R. Alexander, E. Boyer, K. Kroeger, E. Mayorga, R. Smith, E. Stets, and H. Tian In:R.G. Najjar, M.A.M. Friedrichs, W.-J. Cai (Editors), Report of The U.S. East Coast Carbon Cycle Synthesis Workshop, January 19-20, 2012, Ocean Carbon and Biogeochemistry Program and North American Carbon Program, pp. 4-5.

1. **Butman D**. G.I.S ArcView Map Production for 'Working with Regional Planning Agencies, Watershed Teams, Environmental Non-Profit Organizations and Business Associations to Promote Source Water Protection in Coordination with the release of the SWAP Reports, (Fall 2001)

OTHER SCHOLARLY ACTIVITY

PRESENTATIONS:
Oral Invited

40. **Water Seminar Series UW Civil and Environmental Engineering (2023) – Linking land and water across the Arctic**

39. **Marine Biological Laboratory – Ecosystems Center (2023) Plenary Speaker for SES Reunion**

38. **NASA ABoVE Science Team Meeting (2023) – Synthesis of Terrestrial and Aquatic linkages across the arctic**

37. **NASA ABoVE Science Team Meeting (2022)*:*** Status and trends of mapping and quantifying wetlands and carbon flux

36. **UW – Osher Lifelong Learning Institute: April 2022** Tracking water and carbon across a changing boreal-arctic landscape

35. **Florida State University Biogeochemistry Seminar: February 2022,** Carbon emissions from inland waters – knowledge gaps, method issues, and why it matters for the boreal-arctic region

34. **Society of Freshwater Science: Annual Meeting May 2021**, Re-examining connections between terrestrial and aquatic carbon cycling in boreal arctic system

33. **University of Washington – SEFS Seminar,** (Fall 2020), Building a Carbon Continuum Perspective.

32. **Biofest 2019 – Tidal Changes:** Carbon Dynamics from Uplands to Aquatic Ecosystems.

31. **Science Workshop on pCO_2 measurements and sensor performance:** Survey of in-situ pCO2 probe deployments, AGU-2018

30. **4th Arctic and Boreal Vulnerability Experiment Science Team Meeting (January 2018)** Hydrology & Aquatic Carbon: Detecting Signals of Permafrost Thaw

29. **University of Washington – Environmental Science and Resource Management Seminar** (February 2018), Carbon Cycling in Aquatic Systems at High Latitudes

28. **National Student Leadership Council – summer program (August 2017):** Carbon cycling in inland waters.

27. **Boston University – Biogeosciences Seminar (October 2017)-** Reconciling the terrestrial and aquatic carbon cycles: fundamental gaps still remain

26. **First International Workshop on Human Impact on Carbon Fluxes in Asian River Systems – Cambodia (2017),** "A National Scale Assessment of carbon fluxes from Inland Waters of the US. In the Context of the 2nd State of the Carbon Cycle Report".

25. **University of North Carolina – Chapel Hill Fall Colloquium Series (October 2016):** *A carbon Conundrum – Inland Waters*

24. **Blue Carbon Summit – Nisqually National Wildlife Refuge (March 2016):** Lessons learned from freshwater carbon synthesis and the USGS Land Carbon Program.

23. **UW – Environmental Science and Resource Management Seminar (February 2016):** The Carbon Conundrum in Arctic Freshwaters.

22. **Washington Department of Ecology – Seminar, November 9th 2015:** Implications of agriculture expansion for stream metabolism in the Nooksack River Basin.

21. **UW – Environmental Science and Resource Management Seminar Series (March 2015):** Land-use and aquatic carbon biogeochemistry

20. **Washington State University (Vancouver) Science Seminar Series (March 2015): "**Human influence on organic carbon in rivers: another source of fossil fuel?"

19. **UW- Remote Sensing Seminar (ESRM 430) March 2015:** "Application of remote sensing to aquatic sciences"

18. **UW – Civil and Environmental Engineering Water Science Seminar Series (December 2014):** "Human influence on organic carbon in rivers: another source of fossil fuel?"

17. **UW- School of Environmental and Forest Sciences Seminar Series (October 2014):** "Fitting Water into the Arctic Carbon Cycle"

16. **University of Alaska – Fairbanks – Synthesis Meeting for Carbon Cycling in Alaska (2014) (USGS-LandCarbon:** "Inland aquatic carbon fluxes from the state of Alaska"

15. **Oregon State University – Water Resources Graduate Program Seminar Series (2014):** "Global synthesis of isotopic ranges of 14 C in DOC from rivers: implications of land use change"
14. **University of Washington- Freshwater Initiative seminar series, Seattle, WA (2013); "**Do freshwater ecosystems matter for carbon accounting in the US?"

13. **University of Washington- Freshwater Initiative Seminar Series (Job candidate interview), Seattle, WA, (2013);** "Inland Waters and The Global Carbon Cycle."

12. **University of Washington, Center for Urban Waters, Tacoma, WA (2013);** "Linking landscapes to aquatic biogeochemistry."

11. **Yale University – Google Earth Engine Geo-workshop, New Haven CT (2013);** "Google Earth Engine and Watershed Biogeochemistry".

10. **4th North American Carbon Program (NACP) All-Investigators Meeting (2013) - Albuquerque, NM:** Continental Coastal Interactions Breakout session 1 –inland aquatic carbon cycling.
9. **Yale University – Remote Sensing Users Group**, **New Haven CT. (2012)**: "Applications of Remote Sensing to Watershed Biogeochemistry".

8. **Earth and Oceans Sciences Seminar – The University of Massachusetts – Boston, (2012):** "Inland Waters and the Global Carbon Cycle".

7. **Ecosystem Science Seminar - The College of the Holy Cross (2012):** Worcester, MA "The Importance of Inland Waters and the Global Carbon Cycle".
.
6. **Watershed Hydrology Seminar - The College of the Holy Cross (2012):** Worcester, MA "Power Laws, Hydraulic Geometry, and Stream Surface Area".

5. **U.S. Ocean Carbon and Biogeochemistry East Coast Carbon Fluxes Workshop (2012):** Virginia Institute of Marine Science, Gloucester Point VA, "Riverine Carbon Flux estimates to the East Coast of the US".

4. **AGU American Geophysical Union, Fall Meeting 2010**: "US Stream CO_2 Evasion: what spatial and temporal patterns can tell us about soil processes*";* Butman D. and P. A. Raymond.

3. **AGU – Meeting of the Americas, Stream and River CO_2 Evasion from the Coterminous US; Eos Trans. AGU, 91(26), Butman D. and P.A. Raymond B12A-01.**

2. **Yale University**, Remote Sensing User Group: "Estimate Forest Biomass using Satellite Reflectance in Northern Eurasia", March 2007.

1. **ECO-Presentation: The Woods Hole Research Center** "Mapping and Quantifying Carbon Storage in The Forests of Russia*"* June 2004.

Oral – Other – D. Butman or student/postdoc as presenter only *Denotes student or post-doc presentation.

36. **AGU Fall Meeting 2022: B15D-07Cryptic carbon: wetland identification under perennial forest cover enhances spatially explicit modeling of soil carbon stock:** *Anthony J Stewart[1], Meghan Halabisky[2], Chad Babcock[3], David E Butman[4], David V D'Amore[5] and L. M. Moskal[4],*

35. **AGU Fall Meeting 2022: GC36A-01 The Greenhouse Gas Budget of North America 2010-2019: Results from the Second Regional Carbon Cycle and Processes study (RECCAP2):** *B. Poulter et al.*

34. **AGU Fall Meeting 2022: EP45C-1669 Partitioning the Fate of Soil Carbon Dioxide Between Losses to Atmosphere and Subsurface Hydrologic Flow Paths:** *Ashif Hasan Abir[1], Wilfred M Wollheim[2], Erin R Hotchkiss[3], David E Butman[4], Jeremy Jones[5], Lara Munro[1], Kaelin Cawley[6] and Keli J Goodman[7],*

33. **AGU Fall Meeting 2022: INV32B-13Teal Carbon – Stakeholder-driven Monitoring of Forested Wetland Carbon**: L. M. Moskal, , Meghan Halabisky, Anthony J Stewart, David E Butman, Chad Babcock, David V D'Amore,

32. **AGU Fall Meeting 2022: B45C-07 - Tracking dynamic wetland vegetation communities after a flood event with airborne AVIRIS-NG, UAVSAR, UAV LiDAR, and PlanetScope data in Peace-Athabasca Delta**: *Chao Wang[1], Tamlin Pavelsky[1], Ethan D. Kyzivat[2], Wayana Dolan[1], Julianne MS Davis[1], Fenix Garcia Tigreros[3], Erika Podest[4], Fangfang Yao[5], Xiao Yang[6], Shuai Zhang[7], Conghe Song[8], Theodore Langhorst[9], Martin Kurek[10], Merritt Harlan[11], Laurence C Smith[2], David E Butman[3], Robert G Spencer[12], Colin J Gleason[11], Kimberly Wickland[13], Robert G Striegl[14] and Daniel L Peters[15],*

31. **JASM – 2022: Spatial Trends in Carbon Fluxes in Headwater Streams: A Case Study at Martha Creek in Stabler, WA (1159), *** *Conroy, H., Butman, D., Hotchkiss, E., Wollheim, W., Jones, J.,*

30. **JASM – 2022:** Improving Estimates of Wetland Soil Carbon Beneath the Forest Canopy Through a Spatially Explicit Remote Sensing Approach (412), **Stewart. A., Halabisky, M., Babcock, C., Butman, D., D'Aore, D., Moskal, M.*

29. **JASM-2022 (1697) Transport of Terrestrial DIC and CO2 to Boreal Headwater Streams: Role of Hydrologic Transport and Terrestrial Productivity (1697),** Olsen K. Jones, J. Hotchkiss, E., Butman, D., Wollheim, W., Goodman, K., Cawley, K., Iannucci, F.

28. **AGU-2021 B35G-1503: The Importance of Lake Littoral Zones to Arctic-Boreal Methane** *Emissions Ethan D. Kyzivat1, Laurence C Smith2, Fenix Garcia Tigreros3, Chang Huang4, Chao Wang5, Theodore Langhorst6, Jessica V Fayne7, Catherine Kuhn3,8, Merritt Harlan9, Yuta Ishitsuka9, Dongmei Feng10, Wayana Dolan6, Lincoln H Pitcher11,12, Tamlin Pavelsky13, David E Butman14, Kimberly Wickland15, Mark Dornblaser15, Robert G Striegl16 and Colin J Gleason9*

27. **AGU – 2021 B25G-1558:** Improving Estimates of Wetland Carbon Beneath the Forest Canopy Through a Spatially Explicit Remote Sensing Approach, ***Anthony J Stewart***[1]*, Meghan Halabisky*[2]*, Chad Babcock*[3]*, David E Butman*[1]*, David V D'Amore*[4] *and L. M. Moskal*[1]

26. **AGU – 2021 H43B-01** Arctic-Boreal Wetland Vegetation Communities Mapping in the Peace-Athabasca Delta Using AVIRIS-NG Hyperspectral Data *Chao Wang*[1]*, Tamlin Pavelsky*[1]*, Ethan D. Kyzivat*[2]*, Fangfang Yao*[3]*, Xiao Yang*[1]*, Fenix Garcia Tigreros*[4]*, Conghe Song*[5]*, Shuai Zhang*[6]*, Theodore Langhorst*[7]*, Laurence C Smith*[8]*, Mark Dornblaser*[9]*, Kimberly Wickland*[9]*, Martin Kurek*[10]*, Robert G Spencer*[11]*, Robert G Striegl*[12] *and David E Butman*[13]*,*

24. **International Boreal Forest Association: 2021** Heterogeneous patterns of permafrost carbon transfer to Alaskan headwater streams driven by soil type, seasonal thaw, & fire; ***David Butman****, Matthew Bogard, Joshua Koch, Kimberly Wickland, Brian Ebel, Michelle Walvoord, Jason James, Sarah Ellen Johnston, Kerri Finlay, Robert Striegl, Mark Dornblaser, Robert Spencer*

23. ***American Geophysical Union Fall Meeting. (2020),** B075-0006Estimating the Influence of Hydrological Connectivity on Carbon Dynamics Across Arctic-Boreal Lakes, ***Fenix Garcia Tigreros****, ***Catherine Kuhn****, Mark Dornblaser, Kimberly Wickland, Martin KurekEthan D. Kyzivat, Robert G Spencer, Robert G Striegl,* ***David E Butman***

22. ***American Geophysical Union Fall Meeting. (2020)** B062-0010Synchrony discovered in arctic and boreal lake growing season phenologies as detected with CubeSats, ***Catherine Kuhn****[1]*, Aji John*[2]*,* ***Fenix Garcia Tigreros****, Amanda Tan*[3] *and* ***David E Butman***

21. **American Geophysical Union Fall Meeting. (2020),** B015-03 Carbon Export from the Pacific Northwest Coastal Rainforest Margin, **David E Butman** et al.

20. ***American Geophysical Union Fall Meeting. (2019), B13G-2570** Planktonic respiration and organic matter cycling using short-term *in situ* measurements**,** ***Sarah Ellen Johnston***[1]*, James Collins*[2]*, Angela Boysen*[3]*, Cynthia Soued*[4]*,* ***David E Butman***[5]*, Kimberly Wickland*[6]*, Steven Sadro*[7]*, Anitra E Ingalls*[3]*, Brian Bergamaschi*[8]*, Lisamarie Windham-Myers*[9] ***and Matthew Bogard****

19. ***American Geophysical Union Fall Meeting (2019),** B11D-02 - Combining satellite and field observations to detect changes in primary productivity in high-latitude lakes across the Landsat archive, ***Catherine Kuhn****,* ***Matthew Bogard****,* *Jillian M Deines, , Mark Dornblaser, Kimberly Wickland, Robert G Striegl,* ***David E Butman,***

18. ***American Society of Limnology and Oceanography (2019),** DRIVERS OF DISSOLVED ORGANIC MATTER COMPOSITION IN NORTHERN HIGH LATITUDE LAKES, **Johnston, S.; Bogard,** M.; Striegl, R.; Dornblaser, M.; Podgorski, **D.; Butman**, D.; Spencer, R.

17. **American Geophysical Union Fall Meeting (2018),** Re-examining the Role of Lakes in Carbon Cycling Across High Latitudes – Results from ABoVE, **David E. Butman,* Matthew Bogard, *Catherine Kuhn**, Rob Spencer, Sarah Ellen Johnston, Mark Dornblaser, Kimberly Wickland and Robert G Striegl, #B13E-06

16. **American Society of Limnology and Oceanography (June 2018)**, *Carbon fluxes from Land to Sea: Sessons Learned from the 2nd State of the Carbon Cycle Repo*rt, **David Butman**, Randy Kolka, Wei-Jun Cai, Katja Fennel, Sarah Stackpoole, Carl Trettin, Lisamarie Windham-Myers,

15. ***American Geophysical Union Fall Meeting, Kuhn, C.,** Richey, J.E., Striegl, R.G., Ward, N., Sawakuchi, H.O., Crawford, J., Loken, L.C., Stadler, P., Dornblaser, M. and **Butman, D.E**., "Optical Remote Sensing Algorithm Validation using High-Frequency Underway Biogeochemical Measurements in Three Large Global River Systems." (2017); New Orleans, LA. Dec 2017. Accepted Abstract #: 272524

14. ***Northwest Forest Soil Council Meeting**, **James, J**., Myers, T., Gross, C., Harrison, R. and **Butman, D**. 2017. *Assessing the effect of land use conversion to* Eucalyptus *forest on water extractable organic carbon dynamics in Brazilian Oxisols*., Hood River, OR.

13. ***European Geosciences Union General Assembly**, **James, J**., Gross, C., Dwivedi, P., Myers, T., Harrison, R., and **Butman, D**. 2017 *From solid to liquid: Assessing the release of organic matter into soil solution in response to land-use conversion on Brazilian Oxisols*., Vienna, Austria.

12. ***Soil Science Society of America Annual Meeting,** ***James, J**., Gross, C., Dwivedi, P., Harrison, R., and **Butman, D**. 2017. *Coupling Solid- and Liquid-Phase Soil Organic Matter Analyses to Understand the Consequences of Forest Conversion and Management on Brazilian Oxisols*., Tampa, FL

11. ***Northwest Forest Soils Council** ***James, J**. Harrison, R., **Butman D**., Gross, C., and Dwivedi, P. 2018. The effect of forest harvest on soil C in the Pacific Northwest and beyond. , Ellensburg, WA.

10. ****US Forest Service Fish and Watershed Managers Meeting*** ***James, J**., Bakker, J., **Butman, D**., Kates, N., Kuhn, C., Littlefield, C., and Miller, C. 2018 The effects of forest restoration on ecosystem carbon in western North America: a systematic review., Lincoln City, OR.

9. ***ASLO 2017 Honolulu HI**: "Leveraging Spectral-biogeochemical patterns to map carbon chemistry across a large, highly regulated river system" (E); **C. Kuhn**, **D. Butman**, J. Crawford, L. Loken, P. Stadler, R. Striegl.

8. ***ASLO 2017 Honolulu HI**: "Ecosystem metabolism of boreal/sub-arctic lakes undergoing rapid environmental change: Insights from oxygen isotopic analyses", **M. Bogard**, R. Striegl, M. Dornblaser, E. Stets, P. Quay, H. Holtgrieve, **D. Butman**

7. **AGU- American Geophysical Union (GC23k-11-2016)**, "Inland Waters and the Global Carbon Cycle", **D. Butman, R**. Striegl, S/ Stackpoole, P. DelGiorgio, Y/ Prairie, D. Pilcher, P. Raymond, J Alcocer, F. Paz

6. ***AGU - American Geophysical Union Fall Meeting, Kuhn, C., Butman, D**. "Mapping the impact of river regulation on carbon dynamics using coupled field surveys and remotely-sensed optical properties." ; San Francisco, CA. 18 Dec 2016. Accepted Abstract # 137532

5. **AGU- American Geophysical Union (GC23k-16-2016),** "State of the Carbon Cycle, Consequences of Rising Atmospheric CO_2", D. Moore, **D. Butman** et al.

4. **AGU – American Geophysical Union Fall 2015 (GC12B-10)** "Aquatic carbon fluxes from the conterminous US and Alaska**", David Butman**, S. Stackpoole, E. Stets, C. McDonald, D. Clow, R. Striegl,

3. **AGU – American Geophysical Union Fall 2014 (B33G-07):** "Carbon evasion from surface waters in Alaska", David Butman, R. Striegl, S. Stackpoole, D. Clow, K. Verdin, J. Rover

2. **Joint Aquatic Sciences Meeting (2014)**: Portland WA, **Butman, D. E.**; Wilson, H. F.; Barnes, R. T.; Raymond, P. A.; Xenopoulos, M. A.; "Human induced mobilization of aged organic carbon" (Abstract ID:13977)

1. **Ameriflux Science Meeting & 3rd NACP All-Investigators Meeting 2011**, New Orleans, LA. "Emerging Perspectives on Continental-Scale Riverine Carbon Fluxes**"** -- (Butman D., E. Stets, P.A. Raymond, R. Striegl) Session**:** NACP: The Linked Carbon and Water Cycles -- The Atmosphere-Land-Ocean Continuum

Posters (D. Butman or student/postdoc as presenter only) (*denotes student presentation)

18. **Society of Freshwater Sciences, (2019)** Exploring Planktonic Respiration using short-term in-situ measurements**. M. Bogard*, D, Butman** et al.

17. **NASA Arctic and Boreal Vulnerability Experiment Science Team meeting – "***Crossing the Divide: Inundation drives hotspots for carbon flux",* La Jolla, CA May 2019

16. ***American Geophysical Union Fall Meeting; Bogard, M.**, R. Striegl, **C. Kuhn**, M. Dornblaser, G. Holtgrieve, **D. Butman**. 2017. Little terrestrial support for organic matter cycling in many permafrost lakes..

15. ***EGU – European Geophysical Union (EGU2017-10787) "**From Solids to liquid: assessing the release of organic matter into soil solutions in response to land-use conversion in Brazilian Oxisols" **J. James**, C. Gross, P. Dwivedi, R. Bernardi, I. Guerrini, R. Harrison, **D. Butman**

14. ***AGU – American Geophysical Union Fall 2016 (H51H-1581).** "Mapping the impact of river regulation on carbon dynamics using coupled field surveys and remotely-sensed optical properties", C. Kuhn, **D. Butman**

13. ***AGU – American Geophysical Union Fall 2016 (B41-0448**), "From Solids to liquid: Assessing the release of carbon from soil in to solution in response toforest management. **J. James**, C. Gross, **D**. **Butman**, R. Harrison.

12. **AGU – American Geophysical Union Fall 2015 (GC13F-1221),** "Dissolved Organic Carbon Fluxes in Rivers of the Conterminous United States: Influence of Terrestrial – Aquatic Linkages"; S. Stackpoole, **D. Butman,** E. Stets, R. Striegl, D. Bachelet, Z. Zhu, L. Shuguang
11. **U.S.G.S. Oregon Water Science Center Open House, October 2015**: "Dissolved Carbon and Methane Monitoring: Ongoing and Future Plans for the Columbia River Basin", **D. Butman**, C. Anderson, H. Bragg, R. Striegl, E. Stets, J. Crawford.

10. **AGU – American Geophysical Union Fall Meeting 2013,** "A synthesis of Carbon Cycling for the Conterminous US: does it matter for terrestrial carbon budgets?" (H23D-1305)- **Butman D**. Stackpoole S., Stets A., Clow D., McDonald C., Striegl R.

9. **AGU American Geophysical Union Fall Meeting 2012, "**Stream and River CO_2 Fluxes from the Southeastern US"(B41D-0319), **Butman D. E**. Stets, S. Stackpoole, C. McDonald, S. Wilson, J. Swartz, R. Striegl.

8. **NASA Carbon Cycle and Ecosystems Joint Science Workshop 2012,** "An Assessment of Spatial and Temporal Distributions of Ecosystem Carbon Storage and Chance in the Great Plains" - Zhiliang Z., **D. Butman**, T. Hawbaker, S. Liu, C. McDonald, B. Sleeter, T. Sohl, S. Stackpoole

7. **American Geophysical Union Fall 2011 Meeting:** "Organic Carbon Quality and Watershed Characteristics Separate the Contribution of $\Delta^{14}C$ of DOC to Coastal Systems from the Coterminous United States*",* **Butman D**., P.A. Raymond, G. Aiken, K. Butler.

6. **American Geophysical Union Fall 2011 Meeting:** "Using Riverine Organic Matter as an Integrated Signal of Basin-Scale Processes", (B33D-0478) Stackpoole, S. **D. Butman**, E. Stets, R. Striegl

5. **AGU American Geophysical Union, Fall Meeting 2010**, "US Stream and River CO_2 Evasion from the Bottom Up*";* **Butman, D**. and Raymond, P. A. American Geophysical Union, abstract #B31F-0362

4. **AGU American Geophysical Union, Fall Meeting 2009**, "Concentration, Structure, and Lability of Dissolved Organic Matter Across 14 Major Rivers in North America*",* **Butman D**., P.A. Raymond, G. Aiken, K. Butler abstract #B43A-0341

3. **The Connecticut River Science Workshop (CICOR) 2008,** *"*Connecticut River Carbon Cycling- New Approaches for in-situ monitoring*",* **Butman D**. and P.A. Raymond

2. **NASA Carbon Cycle and Ecosystems Joint Science Workshop 2008, "***Controls on the Lateral Flux of Organic Carbon from the Coterminous U.S."*, **Butman D.** & P.A. Raymond

1. **AGU American Geophysical Union, Fall Meeting 2007,** *Controls on DOC Export Through Time Along the Eastern Coast of the U.S."*, **Butman D**. & P.A. Raymond, abstract #B43D-1606

Professional society memberships.

American Geophysical Union (AGU) Ongoing
New York Academy of Science (NYAS) Ongoing
American Society of Photogrammetry and Remote Sensing (ASPRS 2011-2018)
Association for the Science of Limnology and Oceanography (ASLO) Ongoing

Editorial Responsibilities:

Journals:

Associate Editor – Geophysical Research Letters – (AGU) 2022-

Associate Editor - Journal of Geophysical Research – Biogeosciences (AGU), Started January 2018 - 2022

Guest Editor – Biogeosciences (2017-2018) – Special Issue "Human Impacts on Carbon Fluxes in Asian River Systems".

Subject Editor: PeerJ- Environmental Sciences (2017-)

Reviewer:

Journals: Manuscript Reviewer for: NATURE, Nature Geoscience, Organic Geochemistry, Biogeochemistry, Journal of Geophysical Research – Biogeosciences (AE Starting January 2018), Geochimica et Cosmochimica Acta, Global Biogeochemical Cycles, Global Change Biology, Environmental Pollution , Science of the Total Environment , Geophysical Research Letters, Water Resources Research, Marine & Freshwater Research, Environmental Research Letters, Inland Waters, Ecological Monographs, U.S. Geological Survey (Internal), Environmental Science & Technology, Estuaries, Coastal and Shelf Science, Applied Geochemistry, Biogeosciences (BG – Guest Associate Editor – 2017-2018), Geoscientific Model Development (EGU), Limnology & Oceanography, Journal of Hydrology, Hydrologic Processes, Marine Chemistry, Ecological Applications, Environmental Science Processes and Impacts, Limnology and Oceanography Letters, NATURE Communications, PNAS

Funding: NASA Terrestrial Ecosystems (2012-Panel), NSF Ecosystem Science Program (2012), NSF Earth Sciences (2013) NSF INFEWS (track 3 June 2016 Panel) NASA ABoVE (October 2016-Panel) Czech Science Foundation (2016), National Geographic Society (September 2016), NSF-EAR Postdoctoral Fellowships (Spring 2017-remote), NSF DEB (Fall 2017-remote), Canada NSERC Discovery Grant 2018-2019, Research Grants Council (RGC) of Hong Kong, University of Hong Kong, NSF Chemical Oceanography (2018), , NASA SMAP Panel (2020), NSF (CAREER-2020) NSF (Chemical Oceanography 2021), NSF-Arctic Natural Sciences (2021) NOAA HAB (2022) UW – Royalty Research Funds (2021-2023), UW Canadian Studies Fellowship (2021-) NSF-ARCCS (2022)

GRADUATE STUDENTS

SUPERVISORY AND MENTORING EXPERIENCE (Students 9, Post-doc 3)

University of Washington – Chair only

Postdoctoral Fellows:

Chair	Dr. Fenix Garcia-Tigreros, Ph.D. University of Rochester, Methane dynamics across an inundation gradient in arctic systems. (heading to URI – Oceanography – Assistant Faculty)	Fall 2019-2022
Chair	Dr. Benjamin Miller, PhD. University of Washington – Isotope tracing of nitrogen in food webs of large rivers	May 2020 -

Chair	Mathew Bogard, Ph.D. University of Quebec, Carbon in boreal lakes (Now at University of Lethbridge – Assistant Faculty)	Fall 2016-2019

Ph.D.

Chair	Hannah Conroy-Civil and Environmental Engineering	2020-
Co-Chair	Anthony Stewart – NASA TEAL Carbon, SEFS	2020-
Co-Chair	Hunter Stanke – SEFS (quit PhD program 2021)	2020-2021
Chair- Ph.D.	Catherine Kuhn (NASA NESSF), SEFS University of Washington, (Now at McKinsey and Company)	2015-2021
Chair – Ph.D.	Sally Landefeld (NSF-GRFP), Civil and Environmental Engineering (Now taking time off from Academic Research)	2017-2019
Co-Chair	Jason James – SEFS, University of Washington (Co-Chair – Rob Harrison) (Now at Exponent Consulting – Belleview, WA)	2015-2019

Masters:

Chair	Colleen Parrot – School of Environmental and Forest Sciences	2022-
Chair	Hannah Conroy-Civil and Environmental Engineering	2020-2022
Chair	Gabriel Wisswaesser – School of Environmental and Forest Sciences	2020-2022
Chair – MS-QERM	Meghan Davis – left early for non-research career	2019-2020
Co-Chair MS	Farnaz Aslkhodapasand, C&EE (Chair, B. Neumann)	2014-2016

Staff:

Supervisor	Julia Hart (M.S.) Laboratory Technician	2019- 2020
Supervisor	Gergana Ognyanova (PhD.) Radiocarbon preparation in Ocean Sciences Building (Now at Boeing Inc)	3/12018-10/1/2018

RESEARCH ACTIVITIES

RESEARCH GRANTS/CONTRACTS (Successful proposals only) $ represent UW allotment (Total grant award in parenthesis): TOTAL: need to update

King County & Mountains to Sound Greenway	Remote sensing applications for biosolids program		2023-2024
NASA Teal Carbon 2 (co-lead)	Expanded Wetland Carbon mapping	949,532	2023-2026
NASA ABoVE Phase 3	Synthesis of northern aquatic carbon cycling in lakes	$613,487	2022-2025
King County & Mountains to Sound Greenway	Remote sensing applications for biosolids program	$17,000	2022-2023
NASA Carbon Monitoring Systems, TEAL Carbon – (Co-I, Lead M. Moskal – SEFS)	Teal Carbon Stakeholder driven Monitoring of Forested Wetland Carbon	$575,047	2020-2023
USDA Mcintire-Stennis (Co-I, student support for forest carbon and disturbance syhthesis) Lead-I B. Harvey -UW SEFS	Synthesis of fire and disturbance on carbon dynamics in west side forests	$260,711 ($130,000 match)	2020-2022
US National Parks Service, (MORA)	Microbial Source Tracking and use modeling	$21,274	2021-2022
U.S.F.S JVA – Carbon in SE Alaska Wetlands	Soil carbon monitoring	$30,000	2020-2023
NSF – NRT (Research Traineeship Program) Future Rivers NRT	Training the next generation of management and science on large rivers of the Earth	($3,000,000)	2020-2025
NSF – Macrosystems (Institutional PI) Lead PI – E. Hotchkiss Virginia Tech, Co. I's J. Jones UAF, W. Wolheim UNH)	MRA: Linking land-to-water transport and stream carbon cycling to inform macrosystem carbon balance	$219,694 + $92,184 COVID) ($1,119,054)	2020-2024
USGS – Collaborative Proposal – NASA ABoVE (PI)	Vulnerability of carbon cycling to changing hydrology	$157,467	2019-2022
NASA Arctic and Boreal Vulnerability Experiment (Lead-PI), Co. I's R. Striegl USGS, K. Wickland USGS, R. Spencer USGS	Vulnerability of carbon cycling to changing hydrology	$254,291 ($908,335)	2019-2022
Department of Energy (Co-I field campaign and carbon flux) Lead	DOM cycling on the Columbia River	$55,954 ($102,659)	2018-2019

PI – T. Bianchi-UF, Co-I N. Ward – PNNL			
UW-Royalty Research Fund (Lead-PI)	Radioisotope preparation at UW for Arctic research	$39,981	2018-2019
NASA Earth and Space Science Fellowship (Support C. Kuhn)	Arctic and boreal lake remote sensing	$45,000	2019-2020
NASA Earth and Space Science Fellowship (Support C. Kuhn)	Arctic and boreal lake remote sensing	$45,000	2018-2019
California Sea Grant College Program (Lead PI – for post-doc support of M. Bogard)	Delta Science / Sea Grant Fellows Program)	$229,876	2018-2020
U.S. Geological Survey (Lead-PI)	LandCarbon IPA Agreement for Columbia River Carbon Dynamics	$40,000	2017-2018
NASA Carbon Cycle Science (Co-I – field carbon sampling and synthesis) (Lead – P. Raymond, Yale University)	Magnitude and Controls on the Lateral Transport of Carbon via Streams and Rivers	$245,363 ($961,582)	2017-2020
U.S. Geological Survey (Lead-PI)	LandCarbon IPA Agreement for Columbia River Carbon Dynamics	$40,000	2016-2017
National Science Foundation – RCN (Co-PI – hydrologic fluxes of carbon from the coastal rainforest – modelling, workshop lead, and synthesis) (Lead – A. Bidlack –UAS, Co-I Brian Buma – UC-Denver	Coastal Rainforest Margins Research Network – understanding materials flux in linked terrestrial and marine systems in the face of climate change	$7,800 ($501,056)	2016-2021
NASA & USGS Arctic and Boreal Vulnerability Experiment (Co-I, field work, post doc and student mentoring – publication) Lead – R. Striegl – USGS, Co-I's, M Walvoord, B. Minsley, K. Wickland, B. Wylie, B. Ebel – USGS, R. Spenser – FSU	Permafrost connectivity to freshwaters in the Arctic – implications for carbon cycling	$103,000 ($712,000)	2015-2018
USDA Mcintire-Stennis (Lead-PI, student support for soil carbon dating and synthesis) Co. I R. Harrison-UW	Potential soil carbon stocks and turnover across privately-operated forest stands in the PNW: understanding the radiocarbon age, quality,	$193,966 ($100,000 match)	2015-2017

	and lability of SOC within Douglas-fir plantations		

Pending Proposals:

Puget Sound Urban Integrated Laboratory – Department of Energy (Science Lead – Water and Ecosystems)	Regional scale development of science based solluntions for climate change – focusing on front-line and marginalized communities.	$25,000,000	2022-2028

DOCUMENTATION OF TEACHING EFFECTIVENESS

I teach 3 courses per year, allocated to 1 per quarter. This includes a requirement of 1 upper level course in Civil and Environmental Engineering, 1 undergraduate and 1 graduate level course in SEFS. In total I normally teach 12 course credits, with multiple student research credits always ongoing. Overall adjusted course evaluation scores range from 2.7-4.9 with an average of 4.2. Student evaluation scores are presented in table 1. Course descriptions and summaries are provided in detail within the personal statement. Course evaluation scores for 2021-2022 ranged from 3-4.8 with the highest scored for the CEE Advanced Remote Sensing course.

Course Number	Qtr/Year	Short Title	# of Credits	Responsibility %	# Students	Course as a whole	Course Content	Instructors Contribution	Instructors Effectiveness	Combined	Adjusted Combined	CEI	Peer Evaluated	Notes/comment:
ESRM 201	Fall 2020	Sustaining Pacific Northwest Ecosystems	5	100	69	4.1	4.4	4.7	4.6	4.4	4.4	4.4		COVID REMOTE
ESRM 201	Spring 2020	Sustaining Pacific Northwest Ecosystems	5	50	35	2.1	2.3	4.1	3.9	2.5	2.6	4.5		COVID REMOTE
CEE 432/532 & SEFS 432/532	Winter 2020	Advanced Remote Sensing and Earth Observation	4	100	9	4.4	4.5	4.5	4.1	4.8	4.4	5.8		converted to Google Earth Engine and made a true course
ESRM 201	Fall 2019	Sustaining Pacific Northwest Ecosystems	5	100	54	3.7	3.9	3.8	3.8	3.8	3.8	4.9		
CEE 498, CEE 599, SEFS 521	Spring/2019	Special Topics (Remote Sensing)	4	100	13.0	4.6	4.6	4.6	4.7	4.6	4.6	5.5		Includes 2h lab
ESRM 201	Fall/2018	Sustaining Pacific Northwest Ecosystems	5	100	50	4.0	4.2	4.3	4.0	4.0	4.1	4.8	X	Recoiled and reduced content
CEE 498, CEE 599, SEFS 521	Spring/2018	Special Topics (Remote Sensing)	4	100	12	4.1	4.2	3.8	3.8	3.9	3.7	4.8	X	Continue to struggle with UW computer resources (includes 2h lab)
ESRM 429 / SEFS 529	Winter/2018	SEFS/ESRM Seminar	1	100	156	4.5	4.5	4.7	4.6	4.6	4.8	4.8		Theme: Understanding change across High Lattitudes - Arctic Science at UW (seminar discontinued against student wishes after 2018)
SEFS 590	Winter/2018	Graduate Studies (TNC/USFS Forest Restoration for Carbon)	5	50	5	5.0	5.0	4.5	5.0	4.9	4.9	4.0		Followup on TNC/USFS course - graduate only and published a paper as a result (James et al 2018)
ESRM 201	Fall/2017	Sustaining Pacific Northwest Ecosystems	5	100	44	2.6	3.0	2.7	2.5	2.3	2.7	5.5	X	Responded to students to make it harder
ESRM 490	Spring/2017	Special Topics (TNC/USFS Forest Restoration for Carbon)	3	50	13	3.9	4.0	4.1	3.8	4.0	3.8	4.8		TNC/USFS sponsered course to evaluate forest restoration effect on carbon
ESRM 429	Spring/2017	ESRM Seminar	1	100	139	4.1	4.2	4.2	4.3	4.2	4.3	3.9		Theme: Science and Management in the Columbia River Basin
CEE 498, CEE 599, SEFS 521	Winter/2017	Special Topics (Remote Sensing)	4	100	9	4.4	4.6	4.4	4.2	4.4	4.4	4.7	X	Includes 2h lab
ESRM 201	Fall/2016	Sustaining Pacific Northwest Ecosystems	5	100	47	3.6	3.7	3.6	3.5	3.3	3.6	3.9		
SEFS 512	Spring/2016	Biogeochemical Cycling in Soils and Forest Ecosystems	3	100	7	4.0	4.0	4.3	4.0	4.1	4.0	5.5		Working with Soils Faculty for new curriculum
CEE 498, CEE 599, SEFS 521	Winter, 2016	Special Topics (Remote Sensing)	4	100	5	5.0	5.0	5.0	5.0	5.0	4.8	4.0		Includes 2h lab
ESRM 201	Fall/2015	Sustaining Pacific Northwest Ecosystems	5	50	49	4.2	4.4	4.6	4.4	4.3	4.4	5.2	X	
ESRM 429	Spring/2015	ESRM Seminar	1	100	162	4.7	4.7	4.8	4.8	4.8	4.5	4.0		Theme: Watershed Science and Land Use Change

Peer Teaching Evaluations

Course	*Quarter*	*Name*
ESRM 201	Fall 2022	S. Doty - SEFS
ESRM 201	Fall 2018	J Marzluf - SEFS
CEE 498	Spring 2018	J. Lundquist CEE
ESRM 201	Fall 2017	B. Harvey SEFS

CEE 498	Winter 2017	R. Neumann CEE
ESRM 201	Fall 2015	S. Bolton SEFS

Graduate Student Mentoring Committees (UW):
I am currently on 9 active student committees, and in total I have served on 29 student committees across 3 different program in the College of the Environment and 1 program in the College of Engineering. I am currently serving as chair or co-Chair of 3 PhD student committee, have graduated 2 PhD students. To date, I have been co-authors on 8 student led peer reviewed manuscripts.

List of all student committees and my role as of spring 2021

Graduate Student	Degree	Grad Date	Department	Roll
Joshua Sacks	PhD		Oceanography	GSR
Emma Heitmann	PhD		Earth and Space Sciences	Committee
Yuqi Li	PhD		Urban design	Committee
Nishan Biswas	PhD	2020	CEE	Committee Member
Meghan Davis	Masters	N/A	QERM	Chair
Lizzy Stone	Masters	2020	SEFS	Committee Member
Khaled Salam	PhD	N/A	CEE/SEFS	Committee Member
Hunter Stanke	PhD	N/A	SEFS	Co-Chair
Hannah Connroy	Master-PhD		CEE	Chair
Gabrial Wisswaesser	Masters	2022	SEFS	Chair
Emma Leaonard	Masters	2023	SEFS	Committee Member
Claire Beveridge	PhD	2020	CEE	Committee Member
Anthony Stewart	PhD		SEFS	Co-Chair
Anna Beebe	Masters	2022	SEFS	Committee Member
Victoria Ly	PhD	2020	CEE	Committee Member
Catherine Kuhn (NASA NESSF)	PhD	2021	SEFS	Chair
Sally Landfeld (NSF GRFP)	PhD	N/A	On leave	Chair
Nick Waldo	PhD	2019	CEE	Committee member
Sophia D'Ambrosio	PhD	2022	Washington State Unv.	Committee member
Benjamin Miller	PhD	2019	SAFS	GSR
Roxana Rautu	Masters	2019	SEFS	Committee member
Ian Davies	Masters	2019	SEFS	Committee member

Norah Kates	Masters	2019	SEFS	Committee member
Saba Saberi	Masters	2019	SEFS	Committee member
Jason James	PhD	2018	SEFS	Co-Chair
Caleigh Shoot	Masters	2018	SEFS	Committee member
Christiana Dietzen	PhD	2018	SEFS	Committee member
Adrianna Smits	PhD	2017	SAFS	GSR
Melissa Pingree	PhD	2017	SEFS	Committee member
Nick Kullman	Masters	2017	SEFS-QERM	Committee member
Sean Callahan	Masters	2017	SEFS	Committee member
Rosmary Pazdral	Masters	2017	SEFS	Committee member
Farnaz Aslkhodapasand	Masters	2016	CEE	Co-Chair
Laura Pract	PhD	2016	CEE	Co-Chair
Danbi Won	Non-thesis Masters	2016	CEE	Chair

Undergraduate Student Mentoring:
I have currently mentored 5 SEFS undergraduate student for their Thesis based Capstone course. I would like to point out that Madeline O'Dwyer wrote up her thesis in the form of a publication that was accepted at Environmental Research Letters in 2020 I have also provided research experience for 3 students in SEFS, 1 students in CEE, and 1 student in Computer Science and Engineering. I am currently hiring two undergrads for research experience summer 2021.

Undergraduate student mentoring - capstones and research credits.

Undergraduate Student	Grad Date	Department	Roll
Emily Anderson		SEFS	Capstone Thesis Advisor
Stuti Dahal		SEFS	Internship Mentor with World Relief Western Washington
Abby Nesper	2022	SEFS	Capstone (Methane Emissions from Lake Washington)
Madeline O'Dwyer	2020	SEFS	Capstone (Under-ice build-up of GHGs in Arctic Lakes)
Leanna Axtell	2020	SEFS	Capstone (Seasonal Dynamics of GHGs in Arctic Streams)
Paul Heffner	2019	SEFS	Capstone (Landscape controls on DOC export from PNW forests)
Alec Ege	2018	SEFS	Capstone (Modelling Stream Temperature for SPU)
Rachel Yonemura	2017	SEFS	Capstone (Biogeochemistry of an urban stream)
Corrine Hoffman	2017	SEFS	Capstone (GHG flux from urban streams)
J. Henry		SEFS	Research Credits
T. Myers		SEFS	Research Credits
J. Brent		SEFS	Research Credits
J. Drugge		SEFS	Research Credits

SERVICE

Departmental service

Committee member	**CEE Facilities Committee**	Fall 2022-
Curriculum Committee	**SEFS curriculum**	Fall 2022-
Graduate Program Coordinator	**SEFS Graduate Student Program**	Fall 2022-
CEE DEI Committee	**Data analysis, monitoring and presentations lead**	Fall 2022-
Co-Lead	**SEFS** Climate Adaptation Cluster Hire Search	Summer 2021-
SEFS Elected Faculty Council	**School of Environmental and Forest Sciences – University of Washington**	Fall 2019-2022
SEFS Research Committee	**School of Environmental and Forest Sciences – University of Washington**	Fall 2016-2019

SEFS Director Search Committee	**School of Environmental and Forest Sciences – University of Washington – Director Search**	Fall 2016-2017

University service

Royalty Research Fund	**Reviewing Committee**	2021-
Steering Committee	**Future Rivers National Research Training Program**	2019-
Steering Committee	**University of Washington – Freshwater Initiative**	2015-

Professional society and other service:

NASA Science Definition Team Lead	**NASA Future ArcticCOLORS 10 year campaign**	2023-
NASA ABoVE WG Lead	**NASA Arctic and Boreal Vulnerability Experiment Working Group lead (Wetlands)**	2019-
NASA ABoVE WG co-Lead	**NASA Arctic and Boreal Vulnerability Experiment Working Group lead (Permafrost and Hydrology)**	2019-
Working Group member	**T3 – Carbon Working Group**	2021-
Session -Co-Lead	**American Geophysical Union (2018): WS28** Enhancing Measurements of pCO_2 in Freshwaters Using High-Frequency in Situ Sensors: Options and Best Practices	Fall-2018
Contributing Author	**North American Carbon Program – Sustain Observations**	2018-
Session Lead	**American Society of Limnology and Oceanography Summer 2018,** Change in Lakes and Rivers at Regional, Continental and Global Scales, SS016 – 2018	June 2018
Session Lead	**American Geophysical Union (2017):** Where and When Does Biology Matter? Identifying Physical and Biological Controls on Organic Matter Fluxes and Fate in Aquatic Ecosystems.	Fall 2017
Science Contributor/Participant	**Washington State Experimental Forest Science Plan (Riparian and Aquatic Sampling)**	2017-
Session Convener	**ASLO 2017, Honolulu HI:** 049 From the Mountains to the Sea: Fluxes, Transformations, and Impacts of Land-Derived Materials in the Coastal Zone	2017
Session Convener	**American Geophysical Union Fall Meeting (2015):** Organic matter as an Integrated Signal of Climate and Land Use Change from Source to Sea (BG11)	2015

Session Lead	**Joint Aquatic Sciences Meeting, Portland OR:** 093 Anthropogenic Influences on Watershed Biogeochemistry: New Findings and Methods	2014
Invited Advisor	**EU FP7 Environment Program Proposal: "***Evaluation of European Inland Aquatic Greenhouse Gas Fluxes*" (not-funded)	2013
Meeting Coordinator	**North American Carbon Program (NACP) (NASA)**	2012-2015
Session Lead	**American Geophysical Union Fall Meeting:** Linking the Terrestrial and Aquatic Carbon Cycles (B039)	2012
Lead Coordinator	**U.S. Ocean Carbon and Biogeochemistry – Coastal Synthesis (NASA, NOAA, NSF)** *"Riverine Export to the East Coast"*	2010-2018